

PATENT SPECIFICATION

NO DRAWINGS

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COMPLETE SPECIFICATION

Improved Fatty Compositions

We, UNILEVER LIMITED, a company registered under the laws of Great Britain, of Port Sunlight, Birkenhead, Cheshire, England, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to the preparation of margarine and in particular to edible fats which are suitable therefor.

In this specification all parts, percentages and proportions are by weight.

The fat phase of margarine is commonly a blend of hard and soft fats, i.e. of edible glyceride oils, the melting range of some of which extends to relatively high temperatures while that of the others is limited to quite low temperatures. A suitable source of hard fat for this purpose is a mixture of palm-type oils and coconut-type oils in proportions which have been subjected to a so-called co-randomisation treatment in which the mixture undergoes random, i.e. undirected, interesterification in order to produce a butter-like consistency in the margarine product. Coconut-type oils are oils having a high lauric acid content and include coconut oil itself, a palm kernel oil and babassu oil. Palm-type oils correspondingly resemble palm oil itself in their fatty acid content and include, besides palm oil, animal fats such as the tallow as well as hardened animal and vegetable oils.

If too much or too little of the two different types of oil is present in the interesterified mixture (suitable mixtures for interesterification may contain 40 to 65% of palm-type oil and 60 to 35% of coconut-type oil) then fat mixtures are obtained whose melt range is unsuitable.

If moreover the interesterification mixture

constitutes at least 50% of the whole fat phase, then certain glycerides tend to crystallise out from the margarine and give rise to "graininess" or "sandiness" which is very undesirable. This undesirable effect on the texture of the margarine can be avoided to some extent by adding to the interesterification mixture, before processing it to margarine, from 2 to 30%, of a natural oil of the coconut oil type. To endow the margarine with the requisite degree of softness, it is generally desirable also to include in this mixture a substantial amount of a soft oil as for example, groundnut or soyabean oil, which may or may not be partly hydrogenated.

If these precautions are taken a margarine can be obtained which on the one hand exhibits satisfactory melting behaviour and on the other hand is tolerably stable in reasonable storage conditions.

It has however been found that margarine prepared in accordance with the foregoing outline, that is to say, containing in the fat phase at least 50% of an interesterified mixture as described, still tends to become grainy, particularly if stored under widely variable temperatures.

Surprisingly it has been found in accordance with the invention that not only is the tendency to develop graininess in storage largely prevented, but a margarine can be obtained with a good melting range by the presence in the fat phase of an oil of the coconut oil type which has itself been interesterified.

Accordingly, the present invention provides a fat composition suitable for use in conjunction with a soft fat in constituting the fat phase of margarine, the said composition being composed substantially of two components each of which is randomly interesteri-

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fied and of which the first constitutes at least 50% of the fat composition and comprises a mixture of a palm-type oil with a coconut-type oil and at least 80% of the second component consists of a coconut-type of oil.

- 5 It is expedient to add the second component, i.e. a randomly interesterified coconut-type oil, to the first component, i.e. the randomly interesterified mixture of a palm-type oil and a coconut-type oil in an amount from 10 5 to 30%, preferably 10 to 25%, and especially 20 to 25%, relative to the whole fat phase.

- A particularly effective suppression of the tendency for graininess and sandiness and at 15 the same time an advantageous influence on the melting range can be obtained if instead of a single, randomly interesterified coconut oil a randomly interesterified mixture is used of coconut oil itself with other fats, which are preferably also coconut-type oils. Also the 20 addition of oils, neither coconut-type oils nor palm-type oils, e.g. groundnut oil or sunflower oil, to the materials to be interesterified is particularly effective for providing good melt behaviour.

- Each of the fat components or mixtures to be interesterified may also include other fats, e.g. soya oil, groundnut oil, sunflower oil, cottonseed oil or a hardened oil.

- 30 It has been found particularly advantageous to keep the relative proportions of coconut-type to palm-type oil in the first component at 30:70 or even less, and at most 35:65.

EXAMPLE 1

- 35 A first component of a fat composition was prepared by random interesterification of 30 parts coconut oil with 70 parts palm oil. A second component was similarly prepared by random interesterification of equal parts of coconut and palm kernel oil. The composition 40 was made up as follows:—

- a) 22% soya oil
56% randomly interesterified coconut oil/
palm oil mixture
45 22% randomly interesterified coconut oil/
palm kernel oil mixture
100%

- 50 Using this fat blend a milk margarine with a fat content of 80% was prepared in a conventional manner.

- b) For comparison another milk margarine was prepared in similar fashion with 80% fat content, from an oil mix made up as follows:

- 55 22% soya oil
65% randomly interesterified mixture of 40 parts coconut oil and 60 parts palm oil
13% natural coconut oil (i.e. not interesterified).

A stability test was carried out on both margarines for 7 weeks with testing for melt behaviour, consistency and taste. To achieve the greatest possible effect, the products were stored at softening temperature, i.e.

- 24 hours 18°C
" 4°C
" Room temperature
" 4°C
" 18°C
" 4°C
" Room temperature
" 4°C

Room temperature fluctuated between 16 and 26°C.

It was then found that the test margarine made according to the invention exhibited no graininess, mealiness or sandiness throughout the entire seven weeks' period. The comparative test sample under the same conditions was sandy after only twelve days.

EXAMPLE 2

a) A fat composition was prepared as follows:—

- 22% soya oil
50% randomly interesterified mixture of 20 parts coconut oil and 80 parts palm oil
25% randomly interesterified coconut oil
3% coconut oil containing flavouring agents

A margarine was prepared from this fat composition in the manner described in Example 1 and corresponded very closely in its properties to that prepared in that Example in accordance with the invention. It exhibited scarcely any sandiness or graininess.

For comparison with the above Example, a fat blend of the following composition was prepared:—

- 41% randomly interesterified mixture of equal parts coconut oil and soya oil
56% randomly interesterified mixture of 30 parts coconut oil and 70 parts palm oil
3% interesterified coconut oil

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The fat blend was made up into milk margarine as before and the product was tested. The margarine did not exhibit the freedom from graininess and sandiness under fluctuating temperature conditions of storage which characterised the margarine of the invention.

WHAT WE CLAIM IS:—

1. A fat composition suitable for use in conjunction with a soft fat in constituting the fat phase of margarine, the said composition being composed substantially of two compo-

- nents each of which is randomly interesterified and of which the first constitutes at least 50% of the fat composition and comprises a mixture of a palm-type oil with a coconut-type oil and at least 80% of the second component consists of a coconut-type of oil.
2. A composition according to Claim 1 in which the first component comprises at least 65% of a palm-type oil with at most 35% of a coconut-type oil.
3. A composition according to Claim 1 or 2 wherein the first component contains approximately 30% coconut oil and approximately 70% palm oil.
4. A composition according to any of the preceding claims in which the second component comprises coconut oil which has been randomly interesterified with at least one coconut-type oil.
5. A composition according to Claim 4 in which the second component is constituted by a randomly interesterified mixture of approximately equal amounts of coconut and palm kernel oil.
6. A composition according to any preceding claim which includes a glyceride oil of neither the coconut-type nor the palm-type, added to at least one of the components before interesterification.
7. A fat blend suitable for use as the total fat in a margarine, and comprising a composition as claimed in any of the preceding claims together with a minor proportion of groundnut or soyabean oil.
8. A blend according to Claim 7 wherein the said second component constitutes from 10 to 25% of the total blend.
9. A fat composition as claimed in Claim 1, substantially as described with reference to the accompanying examples.
10. A margarine in which the fat phase comprises a blend claimed in any of Claims 7, 8 or 9.
11. Process for preparing a fat composition suitable for use in conjunction with a soft fat in the manufacture of margarine which comprises co-randomly interesterifying a mixture of a palm oil with a coconut oil, further co-randomly esterifying an oil composition consisting of at least 80% of a coconut oil, admixing the randomly interesterified compositions in the proportions of at least 50% of the former and from 5 to 30% of the latter and adding a minor proportion of a soft oil and if desired further edible oils.

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